```
                                    1        6                    25
HSP 65 - M.T.    _____ _____ _____MAKTI AYDEEARRGL ERGLNALADA
HSP 60 - RAT     MLRLPTVLRQ MRPVSRALAP HLTRAYAKDV KFGADARALM LQGVDLLADA
HSP 60 - HUMAN   MLRLPTVFRQ MRPVSRVLAP HLTRAYAKDV KFGADARALM LQGVDLLADA

Consensus        _____ _____ _____AK-- _____AR--- --G---LADA


                 26                                              75
HSP 65 - M.T.    VKVTLGPKGR NVVLEKKWGA PTITNDGVSI AKEIELEDPY EKIGAELVKE
HSP 60 - RAT     VAVTMGPKGR TVIIEQSWGS PKVTKDGVTV AKSIDLKDKY KNIGAKLVQD
HSP 60 - HUMAN   VAVTMGPKGR TVIIEQSWGS PKVTKDGVTV AKSIDLKDKY KNIGAKLVQD

Consensus        V-VT-GPKGR -V--E--WG- P--T-DGV-- AK-I-L-D-Y --IGA-LV--

                     6-7(31-52 AA)


                 76                                              125
HSP 65 - M.T.    VAKKTDDVAG DGTTTATVLA QALVREGLRN VAAGANPLGL KRGIEKAVEK
HSP 60 - RAT     VANNTNEEAG DGTTTATVLA RSIAKEGFEK ISKGANPVEI RRGVMLAVDA
HSP 60 - HUMAN   VANNTNEEAG DGTTTATVLA RSIAKEGFEK ISKGANPVEI RRGVMLAVDA

Consensus        VA--T---AG DGTTTATVLA -----EG--- ---GANP--- -RG---AV--

                                                         21 (121-136 AA)


                 126                                             174
HSP 65 - M.T.    VTETLLKGAK EVETKEQIAA TAAISA.GDQ SIGDLIAEAM DKVGNEGVIT
HSP 60 - RAT     VIAELKKQSK PVTTPEEIAQ VATISANGDK DIGNIISDAM KKVGRKGVIT
HSP 60 - HUMAN   VIAELKKQSK PVTTPEEIAQ VATISANGDK EIGNIISDAM KKVGRKGVIT

Consensus        V---L-K--K -V-T-E-IA- -A-ISA-GD- -IG--I--AM -KVG--GVIT


                 175                                             224
HSP 65 - M.T.    VEESNTFGLQ LELTEGMRFD KGYISGYFVT DPERQEAVLE DPYILLVSSK
HSP 60 - RAT     VKDGKTLNDE LEIIEGMKFD RGYISPYFIN TSKGQKCEFQ DAYVLLSEKK
HSP 60 - HUMAN   VKDGKTLNDE LEIIEGMKFD RGYISPYFIN TSKGQKCEFQ DAYVLLSEKK

Consensus        V----T---- LE--EGM-FD -GYIS-YF-- ----Q----- D-Y-LL---K

                      31 (181-196 AA)                 36 (211-226 AA)

                 225                                             274
HSP 65 - M.T.    VSTVKDLLPL LEKVIGAGKP LLLIAEDVEG EALSTLVVNK IRGTFKSVAV
HSP 60 - RAT     ISSVQSIVPA LEIANAHRKP LVIIAEDVDG EALSTLVLNR LKVGLQVVAV
HSP 60 - HUMAN   ISSIQSIVPA LEIANAHRKP LVIIAEDVDG EALSTLVLNR LKVGLQVVAV

Consensus        -S------P- LE------KP L-IIAEDV-G EALSTLV-N- -------VAV


                      40 (236-251 AA)                 45 (265-280 AA)
```

Fig. 1

```
                   275.                                                    323
HSP 65 - M.T.      KAPGFGDRRK  AMLQDMAILT  GGQVISEE.V  GLTLENADLS  LLGKARKVVV
HSP 60 - RAT       KAPGFGDNRK  NQLKDMAIAT  GGAVFGEEGL  NLNLEDVQAH  DLGKVGEVIV
HSP 60 - HUMAN     KAPGFGDNRK  NQLKDMAIAT  GGAVFGEEGL  TLNLEDVQPH  DLGKVGEVIV

Consensus          KAPGFGD-RK  --L-DMAI-T  GG-V--EE--  -L-LE-----  -LGK---V-V


                   324                                                    373
HSP 65 - M.T.      TKDETTIVEG  AGDTDAIAGR  VAQIRQEIEN  SDSDYDREKL  QERLAKLAGG
HSP 60 - RAT       TKDDAMLLKG  KGDKAHIEKR  IQEITEQLDI  TTSEYEKEKL  NERLAKLSDG
HSP 60 - HUMAN     TKDDAMLLKG  KGDKAQIEKR  IQEIIEQLDV  TTSEYEKEKL  NERLAKLSDG

Consensus          TKD------G  -GD---I--R  ---I-----  --S-Y--EKL  -ERLAKL--G

                                                   ┌──────────────────┐
                                                   │ 59 (349-364 AA)  │
                                                   └──────────────────┘


                   374                                                    423
HSP 65 - M.T.      VAVIKAGAAT  EVELKERKHR  IEDAVRNAKA  AVEEGIVAGG  GVTLLQAAPT
HSP 60 - RAT       VAVLKVGGTS  DVEVNEKKDR  VTDALNATRA  AVEEGIVLGG  GCALLRCIPA
HSP 60 - HUMAN     VAVLKVGGTS  DVEVNEKKDR  VTDALNATRA  AVEEGIVLGG  GCALLRCIPA

Consensus          VAV-K-G---  -VE--E-K-R  --DA-----A  AVEEGIV-GG  G--LL---P-

                   ┌──────────────────┐
                   │ 63 (373-388 AA)  │
                   └──────────────────┘


                   424                                                    472
HSP 65 - M.T.      LDELK.LEGD  EATGANIVKV  ALEAPLKQIA  FNSGLEPGVV  AEKVRNLPAG
HSP 60 - RAT       LDSLKPANED  QKIGIEIIKR  ALKIPAMTIA  KNAGVEGSLI  VEKILQSSSE
HSP 60 - HUMAN     LDSLTPANED  QKIGIEIIKR  TLKIPAMTIA  KNAGVEGSLI  VEKIMQSSSE

Consensus          LD-L-----D  ---G--I-K-  -L--P---IA  -N-G-E----  -EK-------


                   473                                                    522
HSP 65 - M.T.      HGLNAQTGVY  EDLLAAGVAD  PVKVTRSALQ  NAASIAGLFL  TTEAVVADKP
HSP 60 - RAT       VGYDAMLGDF  VNMVEKGIID  PTKVVRTALL  DAAGVAPLLT  TAEAVVTEIP
HSP 60 - HUMAN     VGYDAMAGDF  VNMVEKGIID  PTKVVRTALL  DAAGVASLLT  TAEVVVTEIP

Consensus          -G--A--G--  ------G--D  P-KV-R-AL-  -AA--A-L--  T-E-VV---P

                                                   ┌──────────────────┐
                                                   │ 84 (499-514 AA)  │
                                                   └──────────────────┘


                   523        540
HSP 65 - M.T.      EKEKASVPGG  GDMGGMDF--  -----
HSP 60 - RAT       KEEKD..PGM  GAMGGMGGGM  GGGMF
HSP 60 - HUMAN     KEEKD..PGM  GAMGGMGGGM  GGGMF

Consensus          --EK---PG-  G-MGGM----  -----
```
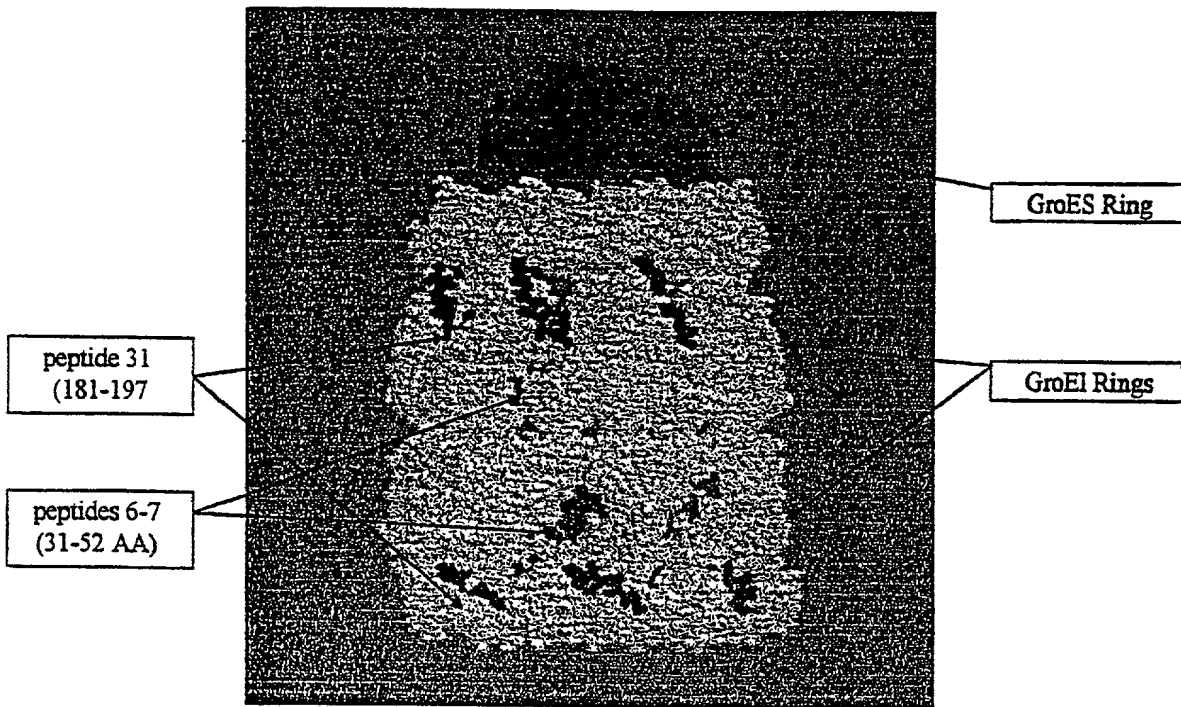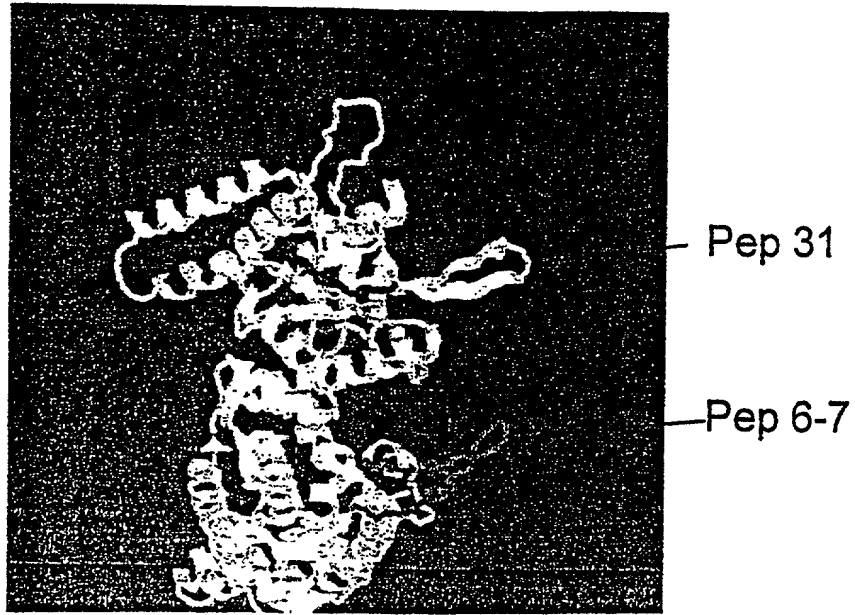
Fig. 1(continued)

peptide 31
(181-197

peptides 6-7
(31-52 AA)

GroES Ring

GroEl Rings

Fig. 2

— Pep 31

— Pep 6-7

Fig. 3A

— Pep 31

— Pep 6-7
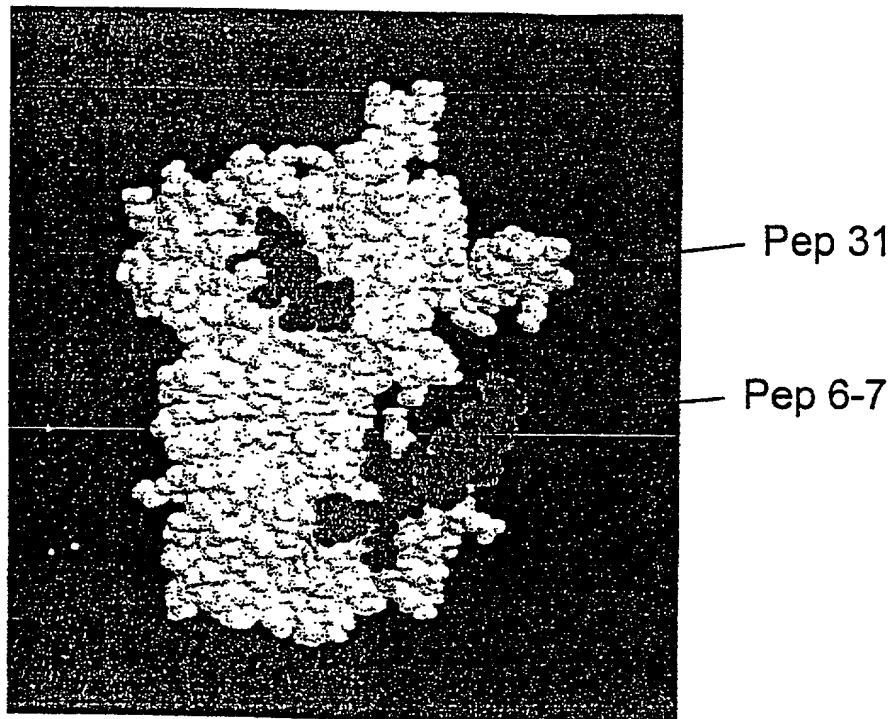
Fig. 3B
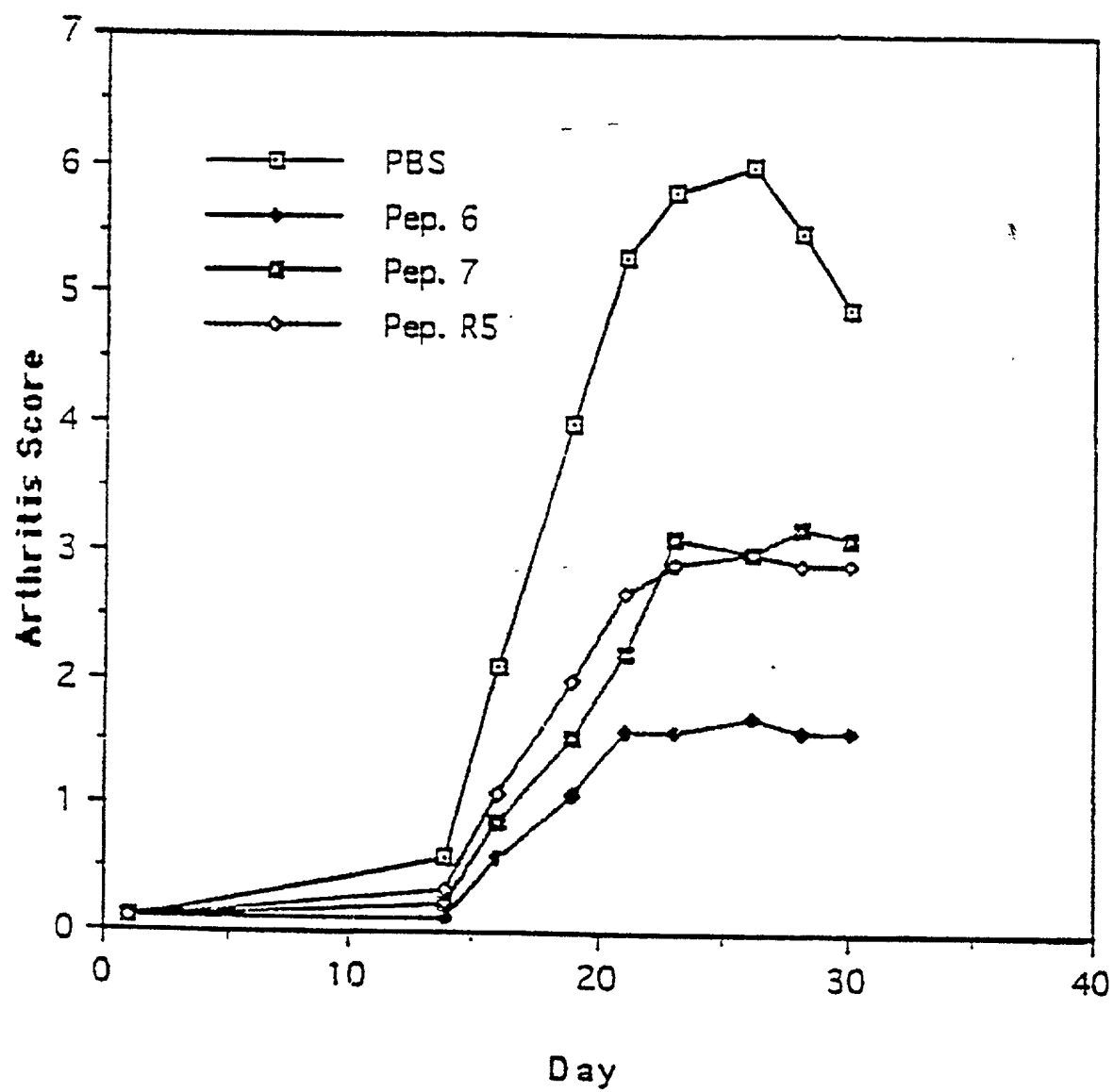
Fig. 4

The "Protective" Motif

MT HSP Peptide 6- (31-46)   G P K G R N V V L E K K W G A P

MT HSP Peptide 7- (37-52)   V V L E K K W G A P T I T N D G

Rat HSP Peptide 5- (36-55)   T V I I E Q S W G S P K V T K D G V T V

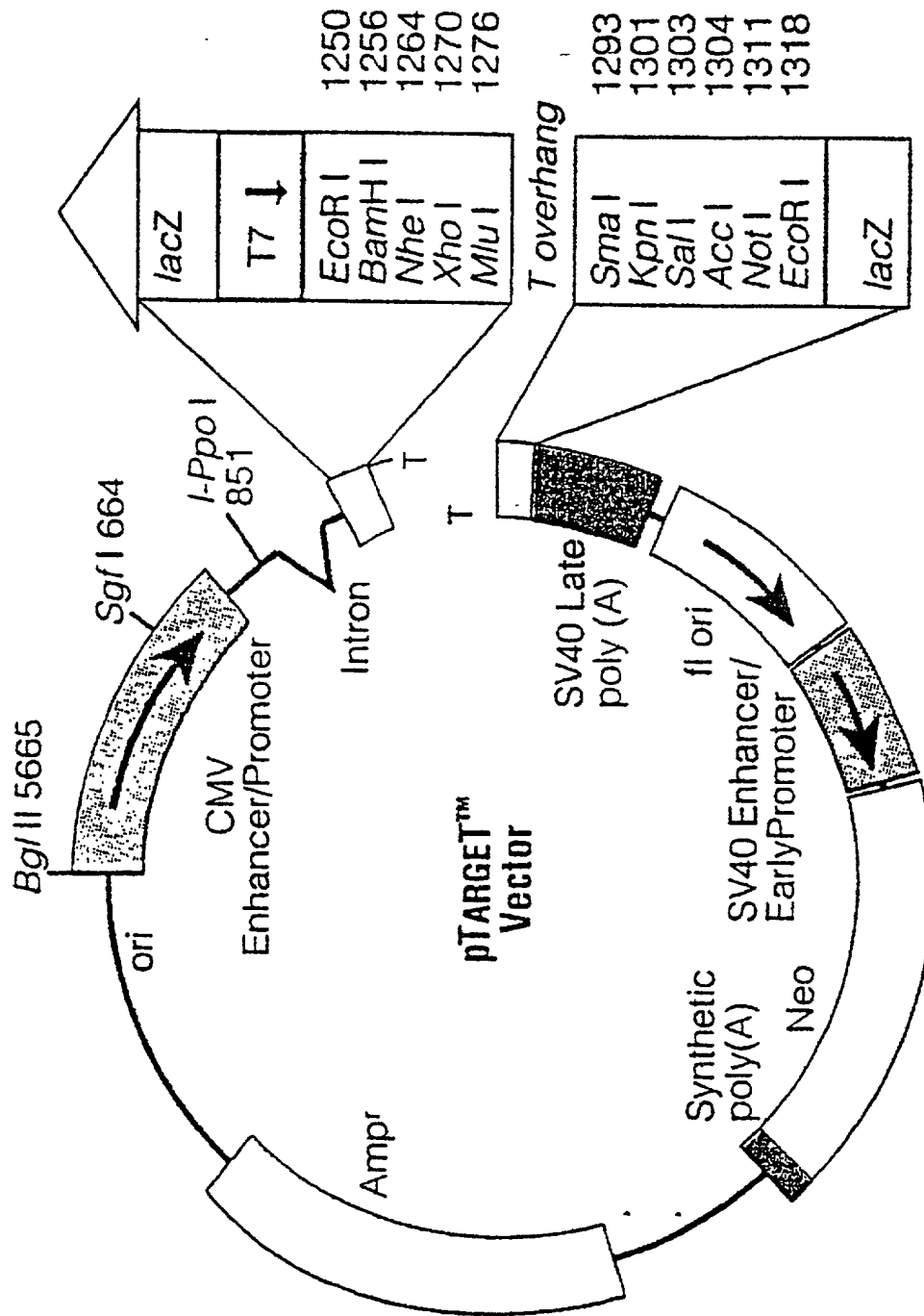Common Motif   V = = E - - W G - P

Fig. 5

Fig. 6